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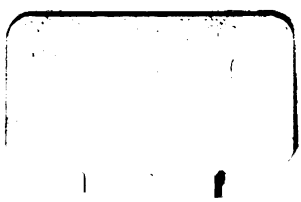

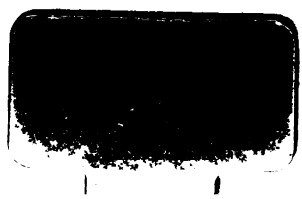

DEPARTMENT OF THE INTERIOR

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BIBLIOGRAPHY

OF

NORTH AMERICAN GEOLOGY

FOR

1910

WITH SUBJECT INDEX

BY

JOHN M. NICKLES

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BIBLIOGRAPHY OF NORTH AMERICAN GEOLOGY FOR 1910, WITH SUBJECT INDEX.

By JOHN M. NICKLES.

INTRODUCTION.

The bibliography of North American geology, including paleontology, petrology, and mineralogy, for the year 1910 follows the plan and arrangement of its immediate predecessors, the bibliographies for 1906–7, 1908, and 1909 (Bulletins 372, 409, and 444 of the U. S. Geological Survey). It includes publications bearing on the geology of the continent of North America and adjoining islands, also Panama and the Hawaiian Islands. Papers by American writers on the geology of other parts of the world are not included. Textbooks and papers general in character by American authors are included; those by foreign authors are excluded unless they appear in American publications.

As heretofore, the papers, with full title and medium of publication and explanatory note when the title is not fully self-explanatory are listed under the authors arranged in alphabetic order. The author list is followed by an index to the literature listed. In this index the entries, in one alphabet, are of three kinds—first, subject, with various subdivisions, to enable the specialist to ascertain readily all the papers bearing on a particular subject or area; second, titles of papers, many of them abbreviated or inverted, under their leading words; and third, cross references, which have been freely used to avoid too much repetition. The subjects have been printed in black-faced type, the titles of papers and cross references in ordinary type. As it may not be always obvious which subject headings have been adopted, a classified scheme of those used immediately precedes the index.

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1171. Fox Hills sandstone and "Ceratops Beds" in South Dakota, North Dakota, and eastern Wyoming.—Abstract: Science, new ser., vol. 32, pp. 63–64, July 8, 1910.

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1172. Burro Mountain mining district.—Mines and Minerals, vol. 30, no. 6, pp. 380–382, 4 figs., January, 1910.

Includes an account of the geology of the district, located in Grant County, New Mexico, and of the occurrence and character of the copper ores.

Steel, A. A.

1173. The geology, mining, and preparation of barite in Washington County, Missouri.—Am. Inst. Min. Eng., Bull. no. 38, pp. 85–117, 5 figs., February, 1910; Trans., vol. 40, pp. 711–743, 5 figs., 1910. Canadian Min. Jour., vol. 31, no. 5, pp. 138–143, March 1, 1910.

Steenstrup, K. J. V.

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1175. Underground ice in northern Alaska.—Am. Geog. Soc., Bull., vol. 42, no. 5, pp. 337–345, 7 figs., May, 1910.

Steidtman, Edward.

1176. The secondary structures of the eastern part of the Baraboo quartzite range, Wisconsin.—Jour. Geology, vol. 18, no. 3, pp. 259–270, 5 figs., 1910.

Sterrett, Douglas B.

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1178. Special problems and their study in economic geology.—Econ. Geology, vol. 5, no. 8, pp. 781–782, 1910.

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1179. Exploration of contact metamorphic ore deposits.—Eng. and Min. Jour., vol. 90, pp. 513–515, September 10, 1910.

Stines, Norman C.

1180. Hoag district [Modoc County], California.—Min. and Sci. Press, vol. 100, pp. 384–386, 2 figs., March 12, 1910.

Includes an account of the local geology and occurrence and character of gold and silver bearing quartz.

Stoddard, Jesse C., and Callen, Alfred C.

1181. Ocher deposits of eastern Pennsylvania.—U. S. Geol. Survey, Bull. 430, pp. 424–439, 2 figs., 1910.

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Stoek, H. H.

1182. The Illinois coal field.—Mines and Minerals, vol. 31, pp. 54–56, August, 1910.

Stone, R. W., and Calvert, W. R.

1183. Stratigraphic relations of the Livingston formation of Montana.—Econ. Geology, vol. 5, no. 6, pp. 551–557, 1 pl. (map), no. 7, pp. 652–669, no. 8, pp. 741–764, 1 fig., 1910. Abstract: Science, new ser., vol. 32, pp. 218–219, August 12, 1910; Geol. Soc. America, Bull., vol. 21, no. 4, p. 782, 1910.

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1184. The Powder River coal field, Wyoming, adjacent to the Burlington Railroad.—U. S. Geol. Survey, Bull. 381, pp. 115–136, 1 pl. (map), 1910.

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Stookey, S. W.

1185. Geology of Iowa County.—Iowa Geol. Survey, vol. 20, pp. 151–198, 2 pls., 4 figs., 1 geol. map, 1910.

1186. Geology of Poweshiek County.—Iowa Geol. Survey, vol. 20, pp. 237–269, 6 figs., 1 geol. map, 1910.

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1187. The Kennicott Bonanza copper mine, Alaska.—Eng. and Min. Jour., vol. 89, pp. 1224–1227, 4 figs., June 11, 1910.

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1188. The Bering River coal field of Alaska.—Eng. and Min. Jour., vol. 90, pp. 272–275, 1 fig., August 6, 1910.

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1191. Surface indications of ore shoots in depth.—Min. and Sci. Press, vol. 101, pp. 537–538, October 22, 1910.

Stose, George W.

1192. The copper deposits of South Mountain in southern Pennsylvania.—U. S. Geol. Survey, Bull. 430, pp. 122–131, 1 fig., 1910.

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1193. Report of the geologist.—Pennsylvania, Dept. Agric., Bull. no. 193, pp. 174–177, 1910; Fifteenth Ann. Rept., 1909, pp. 570–573, 1910.

Stremme, H.

1194. Wie ist *Diplodocus* richtig aufzustellen?—Naturw. Wochenschr., Jena, N. F., Bd. 8, no. 50, pp. 796–799, 2 figs., December 12, 1909.

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1195. Borax deposits of the United States.—Am. Inst. Min. Eng., Bull. no. 38, pp. 167–171, February, 1910; Trans., vol. 40, pp. 909–913, 1910.

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Surr, Gordon.

1196. Igneous rocks; their classification in the field.—Min. World, vol. 32, pp. 314–319, February 5, 1910.

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1199. The origin and commercial value of borates.—Min. World, vol. 33, pp. 1137–1138, December 17, 1910.

1200. The origin of petroleum.—Los Angeles Min. Rev., vol. 28, no. 16, pp. 17–18, July 9, 1910.

1201. Cause of climatic variations. The glacial period and the effect it is possibly exerting on present-day conditions.—Los Angeles Min. Rev., vol. 28, no. 24, pp. 12–15, September 3, 1910. Mines and Methods, vol. 2, no. 2, pp. 43–44, October, 1910.

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1202. Recurrence of the *Tropidoleptus* fauna in the Chemung of Maryland.—Geol. Soc. America, Bull., vol. 20, pp. 679–686, 1 fig., 1910.

1203. A generalized section through the Appalachian Mountains of Maryland.—Abstract: Science, new ser., vol. 32, p. 189, August 5, 1910. Abstract and discussion: Geol. Soc. America, Bull., vol. 21, no. 4, pp. 769–770, 1910.

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1204. Geology of the Jarbridge mining district, Nevada.—Min. and Sci. Press, vol. 101, pp. 871–872, 1 fig., December 31, 1910.

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1206. Our periodic earth. Boston, Geo. H. Ellis Co., 1910. 54 pp.

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Taff, Joseph A.

1207. Ice-borne boulder deposits in mid-Carboniferous marine shells.—Abstract: Geol. Soc. America, Bull., vol. 20, pp. 701–702, 1910.

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The Madill oil pool, Oklahoma.—U. S. Geol. Survey, Bull. 381, pp. 504–513, 1 pl. (map), 1 fig., 1910. See no. 1132 of bibliography for 1909, U. S. Geol. Survey, Bull. 444, p. 96.

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1208. The National Geographic Society's Alaskan expedition of 1909.—Nat. Geog. Mag., vol. 21, no. 1, pp. 1–54, 55 figs., January, 1910.

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1210. A laboratory manual of physical geography. New York, The Macmillan Company, 1910. xvii, 362 pp., illus.

Tarr, William Arthur.

1211. Copper in the "Red Beds" of Oklahoma.—Econ. Geology, vol. 5, no. 3, pp. 221–226, 2 figs., 1910.

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1212. Bearing of the Tertiary mountain belt on the origin of the earth's plan.—Geol. Soc. America, Bull., vol. 21, no. 2, pp. 179–226, 1 pl., 8 figs., 1910.

1213. Field studies on the Pleistocene deposits of southwestern Ontario.—Canada, Geol. Survey, Summ. Rept., 1909, pp. 164–167, 1910.

1214. Richmond and Great Barrington bowlder trains.—Geol. Soc. America, Bull., vol. 21, no. 4, pp. 747–752, 1 fig., 1910.

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1217. Isobases of the Algonquin and Iroquois beaches and their significance.—Abstract: Science, new ser., vol. 32, p. 187, August 5, 1910.

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1218. The Lluvia de Oro mine [Chihuahua, Mexico].—Min. and Sci. Press, vol. 100, pp. 59–60, 3 figs., January 1, 1910.

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Thomson, R. W.

1219. The Portland Canal mining district, British Columbia.—Canadian Min. Inst., Quar. Bull., no. 10, pp. 197–203, 1 fig., April, 1910.

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1221. An association of enargite, covellite, and pyrite from Ouray Co., Colorado.—Am. Jour. Sci., 4th ser., vol. 29, pp. 358–359, April, 1910.

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1224. A speculation in crystallography.—Science, new ser., vol. 32, pp. 216–218, August 12, 1910.

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1227. Engineering and economic aspects of low-grade copper deposits.—Eng. Mag., vol. 38, no. 6, pp. 893–904, 7 figs., March, 1910.

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Tornier, Gustav.

1228. Wie war der *Diplodocus carnegii* wirklich gebaut?—Gesell. naturf. Freunde Berlin, Sitz., no. 4, pp. 193–209, 1 pl., 6 figs., April, 1909.

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1229. Ernstes und lustiges aus Kritiken über meine *Diplodocus*-Arbeit.—Gesell. naturf. Freunde Berlin, Sitz., no. 9, pp. 505–536, 3 figs., November, 1909.

Discusses various views held as to the pose and habits of *Diplodocus*.

1230. War der *Diplodocus* elefantenfüssig?—Gesell. naturf. Freunde Berlin, Sitz., no. 9, pp. 536–557, 19 figs., November, 1909.

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1231. Ueber und gegen neue *Diplodocus*-Arbeiten.—Deutsch. Geol. Gesell., Monatsber., no. 8–10, pp. 536–576, 12 figs., 1910.

Discusses the restoration and habits of *Diplodocus*.

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1232. Excursion cientifica a Viñales. Descubrimiento de Ammonites del período jurásico en Cuba.—Habana, Acad. Cienc. Méd., Fís., y Nat., Anales, Rev. Cient., t. 47, pp. 187–191, July, 1910.

Records the discovery of Jurassic ammonites in Cuba.

1233. Excursion a la Sierra de Jatibonico. Osamentas fósiles de *Megalocnus rodens* ó *Myomorphus cubensis*. Comprobación de la naturaleza continental de Cuba á principios de la época cuaternaria.—Habana, Acad. Cienc. Méd., Fís., y Nat., Anales, Rev. Cient., t. 47, pp. 192–203, 6 pls., July, 1910.

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1234. Investigaciones paleontologicas realizadas en las Sierras de Viñales y Jatibonico.—Habana, Acad. Cienc., Méd., Fís., y Nat., Anales, Rev. Cient., t. 47, pp. 204–217, 8 pls., July, 1910.

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Toula, Franz.

1235. Eine jungtertiäre Fauna von Gatun am Panama-Kanal.—K.-k. Geol. Reichsanstalt, Jahrb., Bd. 58, H. 4, pp. 673–760, 4 pls., 15 figs., 1909.

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Twenhofel, W. H.

1237. Geologic bearing of the peat beds of Anticosti Island.—Am. Jour. Sci., 4th ser., vol. 30, pp. 65–71, July, 1910.

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Ordovicic-Siluric section of the Mingan and Anticosti Islands, Gulf of Saint Lawrence.—See Schuchert and Twenhofel, no. 1105.

Twitchell, M. W.

Geological distribution of the Mesozoic and Cenozoic Echinodermata of the United States.—See Clark and Twitchell, no. 242.

Tyrrell, J. B.

1238. Changes of climate in northwestern Canada since the glacial period.—11. Intern. Geologenkongress, Stockholm: Die Veränderungen des Klimas seit dem Maximum der letzten Eiszeit, pp. 389–391, 1910.

1239. Ice on Canadian lakes.—Canadian Inst., Trans., vol. 9, pp. 13–21, 6 pls., 1910.

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1240. "Rock glaciers" or chrystocrenes.—Jour. Geology, vol. 18, no. 6, pp. 549–553, 2 pls., 1910.

1241. The geology of western Canada.—Abstract: British Assoc. Adv. Sci., Rept. 79th Meeting, pp. 471–472, 1910.

1242. Placer gold mining in Canada.—Abstract: British Assoc. Adv. Sci., Rept. 79th Meeting, pp. 480–481, 1910.

Udden, Johan August.

1243. Observations on the earthquake of May 26, 1909.—Pop. Sci. Monthly, vol. 77, no. 2, pp. 154–162, 1 fig., August, 1910. Illinois State Acad. Sci., Trans., vol. 3, 1910 (reprint, 12 pp., 1 fig.).

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1244. A geologist's notes on the origin of coal.—Min. World, vol. 32, pp. 1129–1130, June 4, 1910.

Geological map of a portion of west Texas, showing parts of Brewster, Presidio, Jeff Davis, and El Paso counties and south of the Southern Pacific.—See Hill and Udden, no. 591.

Udden, Jon Andreas.

1245. Diamond drill core from Franklin County.—Illinois State Geol. Survey, Bull. no. 16, pp. 300–301.

1246. The oolitic limestone industry at Bedford and Bloomington, Indiana.—U. S. Geol. Survey, Bull. 430, pp. 335–345, 1910.

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1247. Structural materials in Illinois.—Illinois State Geol. Survey, Bull. no. 16, pp. 342–393, 1910.

Uebe, Richard.

1248. Labrador; eine physiographische und kulturgeographische Skizze. Halle a. S., Gebauer-Schwetschke Druckerei, 1909. 112 pp., maps. [Inaugural dissertation, University of Leipzig.]

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Ulrich, Edward Oscar.

1249. List of fossils from St. Hilaire, Quebec, collected by R. Harvie, jr.—Canada, Geol. Survey, Mem. no. 7, pp. 29–30, 1910.

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1250. Age and relations of the Little Falls dolomite (Calciferous) of the Mohawk Valley.—New York State Mus., Bull. 140, pp. 97–140, 1910.

1251. Age of the "Calciferous" formation of the Mohawk Valley, N. Y.—Abstract: Science, new ser., vol. 32, p. 192, August 5, 1910; Geol. Soc. America, Bull., vol. 21, no. 4, pp. 780–781, 1910.

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Umpleby, Joseph B.

1252. Geology and ore deposits of Republic mining district, Washington.—Washington Geol. Survey, Bull. no. 1, 67 pp., 13 pls., 5 figs., 1910.

Underhill, B. M.

1253. A glance at the mammalian dawn.—Delaware County Inst. Sci., Media, Pa., Proc., vol. 5, no. 2, pp. 75–87, 1910.

A general account of the origin and development of the Mammalia.

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1254. Chart of Colorado formations.—Min. Science, vol. 62, p. 198, September 1, 1910.

Union Pacific Railroad Company.

1255. The fossil fields of Wyoming. Reports by members of the Union Pacific expedition. Issued by Passenger Department, Union Pacific Railroad Company, Omaha, Nebraska. 61 pp., illus., 1909.

Includes reports bearing on the geology, physiography, and vertebrate paleontology of Wyoming by W. H. Reed, J. A. Yates, J. E. Todd, A. R. Crook, H. L. T. Skinner, G. C. Broadhead, and George L. Collie.

United States, Department of the Interior.

1256. Coal lands in Oklahoma.—U. S. Senate, 61st Congress, 2d sess., Sen. Doc. no. 390, 374 pp., 9 pls. (maps), 1910.

United States Geological Survey.

1257. Contributions to economic geology, 1908. Part II. Mineral fuels.—U. S. Geol. Survey, Bull. 381, 559 pp., 24 pls., 15 figs., 1910.

The papers in this bulletin have been entered under the individual authors. A list is included of Survey publications on petroleum and natural gas.

1258. Contributions to economic geology (short papers and preliminary reports), 1909. Part I. Metals and nonmetals except fuels.—U. S. Geol. Survey, Bull. 430, 653 pp., 14 pls., 75 figs., 1910.

The papers in this bulletin have been entered under the individual authors. Interspersed are lists of the Survey publications on various economic products.

1259. The publications of the United States Geological Survey (not including topographic maps). July, 1910. 112 pp.

Includes a finding list to the publications.

Upham, Warren.

1260. Geological time.—Popular Astronomy, vol. 14, no. 5, pp. 264–276, May, 1906.

1261. Birds Hill, an esker near Winnipeg, Manitoba.—Geol. Soc. America, Bull., vol. 21, pp. 407–432, 1 pl., July 20, 1910.

Describes the structure and composition of this esker and other drift deposits in the vicinity and discusses the mode of formation of the esker, its relationship to glacial Lake Agassiz, and the conditions of origin of eskers and kames.

1262. The glacial Lake Agassiz.—Abstract: British Assoc. Adv. Sci., Rept. 79th meeting, pp. 472–473, 1910.

Urbina, Fernando.

Primera nota acerca de la fauna miocenica de Zuluzum, Chiapas.—See Engerrand and Urbina, no. 405.

Informe acerca de una excursion geologica preliminar efectuada en el Estado de Yucatan.—See Engerrand and Urbina, no. 406.

Ussing, N. V.

1263. Kryoliten ved Ivigtut.—Geografisk Tidskrift, Kobenhavn, Bd. 19, H. 5, pp. 194–200, 4 figs., 1908.

Describes the occurrence of cryolite at Ivigtut, Greenland, and the mining operations.

Van Horn, F. B.

1264. A cave-in caused by an underground stream at Staunton, Va.—Eng. News, vol. 64, no. 9, pp. 238–239, 5 figs., September 1, 1910.

Van Horn, Frank R.

1265. Landslide accompanied by buckling, and its relation to local anticlinal folds.—Geol. Soc. America, Bull., vol. 20, pp. 625–632, 3 pls., 1910.

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1266. Local anticlines in the Chagrin shales at Cleveland, Ohio.—Abstract: Science, new ser., vol. 32, p. 190, August 5, 1910. Abstract and discussion: Geol. Soc. America, Bull., vol. 21, no. 4, pp. 771–773, 2 pls., 1910.

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1267. Some long-period deviations of the horizontal pendulums at the Harvard seismographic station.—Science, new ser., vol. 31, pp. 230–232, February 11, 1910.

Vaughan, Thomas Wayland.

1268. Geology of the Keys, the marine bottom deposits, and recent corals of southern Florida.—Carnegie Inst. Washington, Year Book no. 8, 1909, pp. 140–144, 1910.

1269. The Miocene horizons at Porters Landing, Georgia.—Science, new ser., vol. 31, pp. 833–834, May 27, 1910.

Notes the correlation based on fossil contents with beds in North Carolina and other States.

1270. Sketch of the geologic history of the Floridian Plateau.—Science, new ser., vol. 32, pp. 24–27, abstract, p. 32, July 1, 1910.

1271. A contribution to the geologic history of the Floridian Plateau.—Carnegie Inst. Washington, Publ. no. 133, Papers from the Tortugas Laboratory, vol. 4, pp. 99–185, 15 pls., 6 figs., 1910.

1272. The continuity of development.—Pop. Sci. Monthly, vol. 77, no. 5, pp. 478–481, November, 1910.

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1273. Observations on glaciers in 1909.—Canadian Alpine Jour., vol. 2, no. 2, pp. 126–130, 1910.

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Vaux, William S.

1274. Modern glaciers.—Canadian Alpine Jour., vol. 2, no. 1, pp. 56–78, 7 pls., 1909.

Vélain, Ch.

1275. Les tremblements de terre récents: Californie, 1906.—Revue de Géog., n. sér., t. 3, pp. 573–632, 1909. (Not seen.)

Versluys, J.

1276. Waren die sauropoden Dinosaurier Pflanzenfresser?—Zool. Jarb., Bd. 29, H. 3–4, pp. 425–450, 1 pl., 10 figs., 1910.

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Very, Frank W.

1277. Fall of a meteorite in Norwood, Massachusetts.—Science, new ser., vol. 31, pp. 143–144, January 28, 1910.

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1278. The Norwood "meteorite" a fraud. How meteoritic evidence may be manufactured.—Science, new ser., vol. 31, pp. 415–418, March 18, 1910.

Vesa y Fillart, Antonio.

1279. Acerca del hallazgo de terrenos geológicos secundarios en la Isla de Cuba.—Habana, Acad. Cienc. Méd., Fis., y Nat., Anales, Rev. Cient., t. 46, pp. 89–93, May–June, 1909.

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Villafaña, José.

1280. Las minas de "Coronas y Anexas," pertenecientes a la "Seguranza Mining Co."—Soc. cient. "Antonio Alzate," Mem. y Rev., t. 28, nos. 1–4, pp. 23–51, 2 pls., 1909.

Includes notes upon the local geology and mineralogy and the character and occurrence of the gold and silver ores at the Coronas y Anexas mine, in Zacualpan, Mex.

Villarello, Juan D.

1281. Hidrología subterránea de la comarca lagunera del Tlahualilo, Durango.—México, Inst. Geol., Parerg., t. 3, no. 4, pp. 205–251, 4 pls., 12 figs., 1910.

Describes the geology and underground water resources of the lake district of Tlahualilo, State of Durango, Mexico.

1282. Diversas zonas mineralizadas, en los principales criaderos metalíferos de Mexico.—Soc. Geol. Mexicana, Bol. t. 7, pt. 1, pp. 9–22, 1910.

Discusses the geologic distribution and genesis of ore deposits.

1283. Zonas probables de acumulacion del petroleo, en el subsuelo de las mejores regiones petroliferas de Mexico.—Soc. Geol. Mexicana, Bol., t. 7, pt. 1, pp. 23–30, 1910.

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1284. Circulacion subterranea del agua por diaclasas, o cavidades supercapilares.—Soc. Geol. Mexicana, Bol., t. 7, pt. 1, pp. 31–46, 1910.

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1285. Algunos datos relativos al mineral de Providencia, San Felipe, Estado de Guanajuato.—Soc. Geol. Mexicana, Bol. t. 7, pt. 1, pp. 47–59, 1910.

Describes the general geology, the geologic structure, and the ore deposits of the Providencia district, State of Guanajuato, Mexico.

Von Engeln, O. D.

A laboratory manual of physical geography.—See Tarr and Von Engeln, no. 1210.

Waggaman, W. H.

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Discusses the genesis of copper ores at Bingham, Utah.

1408. Notes on the Archean rocks of Mexico.—Eng. and Min. Jour., vol. 90, pp. 821–822, October 22, 1910.

1409. The oil fields of Trinidad.—Petroleum Rev., London, vol. 22, pp. 361–364; vol. 23, pp. 17–19, 12 figs., June 18 and July 2, 1910.

1410. William Phipps Blake [1826–1910].—Am. Jour. Sci., 4th ser., vol. 30, pp. 95–96, 1910. Eng. and Min. Jour., vol. 89, p. 1099, May 28, 1910.

CLASSIFIED SCHEME OF SUBJECT HEADINGS.

1. GENERAL.

Associations, meetings; Addresses; History; Philosophy; Biography; Bibliography; Educational; Text-books.

Classification; Nomenclature; Cartography; Technique; Fieldwork; Surveys; Borings.

Geochemistry; Chemical analyses (list); Atmosphere.

Miscellaneous.

2. REGIONAL.

The States of the Union, Alabama, etc.; the Provinces of Canada, Alberta, etc.; Greenland; Mexico; the countries of Central America; the West Indies, and the single islands; the Hawaiian Islands.

3. ECONOMIC.

Ore deposits, origin; Contact phenomena.

Gold; Placers; Black sands; Silver; Quicksilver; Nickel; Cobalt; Copper; Lead; Zinc; Iron; Magnetite; Manganese; Tin; Aluminum; Bauxite; Antimony; Bismuth; Tungsten; Wolframite; Vanadium; Uranium; Carnotite ores; Molybdenum; Molybdenite; Titanium; Rutile; Platinum; Monazite; Rare earths; Tantalum; Selenium; Tellurium; Zircon.

Coal; Anthracite; Coke; Peat; Lignite; Bituminous rock; Natural gas; Petroleum; Oil shales; Asphalt; Albertite; Gilsonite; Grahamite; Ozokerite.

Stone; Building stone; Granite; Bluestone; Limestone; Lime; Marble; Onyx; Sandstone; Clay; Kaolin; Bentonite; Fire clay; Ganister; Slate; Shale; Marl; Sand; Glass sand; Sand-lime brick; Gravel; Cement and cement materials; Concrete materials; Road materials; Trap; Steatite; Soapstone; Talc.

Precious stones; Diamonds; Sapphires; Turquoise; Tourmaline.

Abrasive materials; Corundum; Emery; Garnet; Diatomaceous earth; Tripoli; Volcanic ash; Millstones; Novaculite.

Asbestos; Feldspar; Mica; Quartz; Gypsum; Graphite; Fuller's earth; Infusorial earth; Magnesite; Mineral paint; Chromium; Chromite; Chromic iron ore; Fluorspar; Barite; Barytes; Strontium; Arsenic; Pyrite; Sulphur; Sulphate of soda; Cryolite; Phosphorus; Phosphate; Apatite; Glauconite; Borax; Bromine; Salt; Natron deposits.

4. DYNAMIC AND STRUCTURAL.

Earth, genesis of; Earth, age of; Earth, interior of; Earth, temperature of.

Volcanoes; Earthquakes; Seismographs.

Isostasy; Orogeny; Changes of level.

Magmas; Intrusions; Dikes; Laccoliths; Metamorphism; Contact phenomena.

Deformation; Folding; Faulting; Unconformities.

Conglomerates; Concretions; Stalactites; Jointing; Cleavage.

Sedimentation; Denudation; Erosion; Caves; Sink holes; Erratic bowlders; Weathering; Wind work; Dunes; Loess; Landslides.

Glaciers; Glacial erosion; Eskers; Kames; Moraines; Kettle holes.

Drainage changes.

5. PHYSIOGRAPHIC.

Geomorphy; Relief maps.

Valleys; Cirques; Deserts; Dunes; Deltas; Alluvial fans; Eskers; Kames; Mounds, natural; Natural bridges; Sink holes; Karsts.

Lakes; Swamps; Marshes; Everglades; Terraces; Shore lines; Rivers; Meanders; Falls; Springs.

6. HISTORICAL OR STRATIGRAPHIC.

Geologic history; Geologic time; Paleogeography; Paleogeographic maps; Paleoclimatology.

Geologic maps; Geologic formations described (list).

Pre-Cambrian, Cambrian; Ordovician; Silurian; Devonian; Carboniferous; Triassic; Jurassic; Cretaceous; Tertiary; Quaternary; Recent; Glacial geology; Glaciation; Glacial lakes; Ice ages.

7. PALEONTOLOGY.

Geographic distribution.

Vertebrata; Man, fossil; Mammalia; Aves; Reptilia; Amphibia; Pisces; Footprints, fossil.

Invertebrata; Arthropoda; Trilobita; Ostracoda; Insecta; Arachnida; Myriapoda.

Mollusca; Cephalopoda; Gastropoda; Pelecypoda.

Molluscoidea; Brachiopoda; Bryozoa; Vermes.

Echinodermata; Echinoidea; Asteroidea; Crinoidea; Crystoidea.

Cœlenterata; Anthozoa; Hydrozoa; Graptolites.

Protozoa; Spongida; Foraminifera.

Paleobotany; Diatoms.

Problematica.

8. PETROLOGY.

Rocks, origin; Rocks described (list); Igneous and volcanic rocks; Rock-forming minerals.

9. MINERALOGY.

Minerals described (list); Crystallography; Pseudomorphism; Paragenesis of minerals; Rock-forming minerals; Meteorites.

10. UNDERGROUND WATER.

Mine waters; Thermal waters; Geysers; Springs; Mineral waters.

11. SOILS.

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[The numbers refer to entries in the bibliography.]

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[The numbers refer to entries in the bibliography.]

[1] The analyses in Clarke, 244, have not been included in this list.

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[1] The minerals described in Rowe, 1074, have not been included in this list.

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